

REMARKS

Claims 1-9, 12, 14, 16-17, 22-23, 25-34, 36-38, 40-42, 45-55 and 78-80 are pending in this application. Claims 19-21 and 56-77 were previously canceled and claims 78-80 were previously added. Claims 10, 11, 13, 15, 18, 24, 35, 39, and 43-44 have been cancelled herein. Claims 1, 12, 14, 16, 17, 26, 36, 40-41, 47, and 78 have been amended herein. In view of these amendments and remarks, Applicants respectfully request reconsideration of the claims.

Paragraph 0036 of the specification has been amended to change an incorrectly referenced feature. No new matter has been added.

Claims 1, 8-10, 13-15, 18 and 24 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Publication No. 2004/0262683 A1 to Bohr, *et al.* ("Bohr").

Claim 1 has been amended. It now recites "a second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C)." This limitation was originally presented in claim 11. Bohr does not disclose that the second semiconductor material comprises silicon, germanium and carbon. Therefore, Bohr lacks the feature "a second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C)." For this reason, Applicants respectfully submit that claim 1 is not anticipated by Bohr.

Applicants further note that claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Bohr in view of U.S. Patent No. 6,674,100 B2 to Kubo, *et al.* ("Kubo"). Since claim 11 has been incorporated into claim 1, Applicants address that rejection here.

Kubo teaches away from claim 1, as amended. Although Kubo shows that an additional third semiconductor layer may comprise an alloy of silicon, germanium, and carbon, the purpose

for having the alloy of silicon, germanium, and carbon in Kubo is to prevent lattice mismatch from occurring (column 4, lines 26-45). However, in the present invention, the purpose of having an alloy of silicon, germanium, and carbon is to introduce lattice mismatch. One skilled in the art will not use a method of preventing lattice mismatch for the sake of introducing lattice mismatch.

Examiner has also recited that it would be obvious to one of ordinary skill in the art to "modify the second semiconductor material of Bohr by using a material comprising silicon, germanium, and carbon as taught by Kubo to adjust the lattice constant to a desired level for relaxing the strain in the substrate." In the present invention, the alloy of silicon, germanium, and carbon are used for strengthening the strain, not for relaxing the strain.

For the above-discussed reasons, Kubo teaches away from the present invention. Therefore, there is no motivation or suggestion for one of ordinary skill in the art to combine Bohr and Kubo. Claim 1 is thus patentable over Bohr in view of Kubo.

Claims 10, 11, 13, 15, 18, and 24 are cancelled herein. Because claims 8, 9, and 14 depend directly or indirectly from claim 1, Applicants respectfully submit that these claims are allowable over Bohr.

Claims 1, 8-10, 18 and 24 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,891,192 B2 to Chen, *et al.* ("Chen"). Applicants respectfully traverse the rejection.

Examiner has recited "Chen et al. shows (fig. 1) a semiconductor structure comprising: a semiconductor substrate that includes a first semiconductor material (14) and a second semiconductor (22)." Claim 1, as amended, now recites "a second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C)." In column 3, lines 36-38, Chen has

disclosed that the semiconductor 22 is silicon. Therefore, Chen lacks the feature of "a second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C)." Claim 1 is thus not anticipated by Chen. Applicants respectfully submit that claim 1 is allowable.

Claims 10, 18 and 24 have been cancelled herein. Because claims 8 and 9 depend from claim 1, Applicants respectfully submit that claims 8 and 9 are allowable by reason of their dependence from claim 1 as well as for their further respective defining limitations.

Claims 2, 6 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bohr as applied to claim 1 above and further in view of U.S. Publication No. 2004/0026765 A1 to Currie, *et al.* ("Currie").

Claims 2, 6 and 7 depend from claim 1. As discussed in preceding paragraphs, Bohr lacks the feature "a second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C)." Nowhere does Currie teach or suggest this feature either. Therefore, claim 1 is patentable over Bohr in view of Currie. Accordingly, claims 2, 6 and 7 are allowable over Bohr in view of Currie by virtue of their respective dependence on claim 1 as well as for their respective further defining recitations.

Claims 3-5, 22 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bohr as applied to claim 1 above and further in view of U.S. Publication No. 2002/0125471 A1 to Fitzgerald, *et al.* ("Fitzgerald").

Claims 3-5, 22 and 23 depend from claim 1. As discussed in preceding paragraphs, Bohr lacks the feature "a second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C)." Nowhere does Fitzgerald teach or suggest this feature either. Therefore, Claim 1 is

patentable over Bohr in view of Fitzgerald. Accordingly, claims 3-5, 22 and 23 are allowable over Bohr in view of Fitzgerald by virtue of their respective dependence on claim 1 as well as for their respective further defining recitations.

Claims 11, 12, 16, 17 and 25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bohr as applied to claims 1, 8, 9 and 10 above and further in view of Kubo.

Claim 11 has been cancelled herein. As discussed in preceding paragraphs, Kubo teaches away from the present invention, and thus there is no motivation or suggestion for one of ordinary skilled in the art to combine Bohr and Kubo. The cancelled claim 11 was thus patentable over Bohr in view of Kubo. Since the limitation in claim 11 has been incorporated in claim 1, claim 1 is allowable.

Claims 12, 16, 17 and 25 depend from claim 1, directly or indirectly. Accordingly, claims 12, 16, 17 and 25 are allowable over Bohr in view of Kubo by virtue of their respective dependence on claim 1 as well as for their respective further defining recitations.

Claims 26-36 and 41-55 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,256,239 B1 to Akita, *et al.* ("Akita") in view of Currie. Applicants respectfully traverse the rejection.

Regarding claim 26, Examiner has recited that "Currie *et al.* shows (fig. 3) a strained transistor having a channel region formed in a first semiconductor layer (311) and portions of source and drain (340) formed in a second semiconductor layer 312." Applicants respectfully note that claim 1 has also recited a limitation that "the second semiconductor material is only substantially outside a region underlying the first gate electrode." In Currie, the second

semiconductor layer 312 is not outside the region underlying the first gate electrode. Neither Akita nor Currie, alone or in combination, teach or suggest the limitation that “the second semiconductor material is only substantially outside a region underlying the first gate electrode.” Claim 26 is thus patentably distinct over Akita in view of Currie.

Additionally, claim 26 has been amended to add a limitation of a “second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C).” This limitation was originally presented in claim 39. Applicants note that claims 37-40 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Akita in view of Currie as applied to claim 26 above and further in view of Kubo. Applicants respectfully submit that claims 37-40 are allowable. As discussed in preceding paragraphs, Kubo teaches away from the present invention, and thus there is no motivation for one of ordinary skill in the art to combine Akita and Currie with Kubo. The amended claim 26 is thus allowable over Akita in view of Currie and further in view of Kubo.

Claims 35, 39 and 43-44 have been cancelled. Claims 27-34, 36-38, 40-42, and 45-55 depend directly or indirectly from claim 26. Therefore, claims 27-34, 36-38, 40-42, and 45-55 are allowable over Akita in view of Currie by virtue of their respective dependence on claim 26 as well as for their respective further defining recitations.

Claims 78 and 79 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Currie in view of Chen.

Claim 78 has been amended and now recites a “second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C)”. Examiner has recited that Chen shows “a second semiconductor material (22) of SiGe having a lattice constant different from that of the Si substrate (16) is formed in the source and drain regions and is substantially only outside the

region underlying the first gate.” In column 3, lines 36-38, Chen has disclosed that the semiconductor 22 is silicon, not SiGeC. Therefore, Chen lacks the limitation “a second semiconductor material comprising silicon (Si), germanium (Ge), and carbon (C).” As such, Applicants respectfully submit that claim 78 is allowable.

Claim 79 depends from claim 78. Therefore, claim 79 is allowable over Currie in view of Chen by virtue of its dependence on claim 78 as well as for its respective further defining recitations.

Claim 80 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Currie in view of Chen as applied to claim 78 above and further in view of Kubo.

As discussed in preceding paragraphs, Kubo teaches away from the present invention, and thus there is no motivation or suggestion for one of ordinary skill in the art at the time the invention was made to modify the second semiconductor layer of Currie and Chen by using a material comprising silicon, germanium, and carbon as taught by Kubo. Claim 80 is thus patentable over Currie in view of Chen and further in view of Kubo.

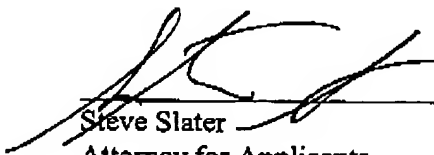
In addition, claims 12, 14, 16, 17, 36 and 40-41 have been amended herein due to the amendment or cancellation of their respective base claims. Claim 47 has been amended to correct an informality.

In view of the above, Applicants respectfully submit that the application is in condition for allowance and request that the Examiner pass the case to issuance. If the Examiner should

have any questions, Applicants request that the Examiner contact Applicants' attorney at 972-732-1001 so that such issues may be resolved as expeditiously as possible.

Respectfully submitted,

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